<u>Permit Application Review for an Amendment to</u> <u>Temporary Covered Source Permit (CSP) No. 0507-01-CT</u>

Application #: 0507-03 for a Minor Modification

Applicant: Pineridge Farms, Inc.

Facility Title: One (1) 275 TPH Crushing Plant with One (1) 300 HP Diesel Engine; One (1)

195 TPH Crushing Plant with One (1) 160 HP Diesel Engine; One (1) 400 TPH Crushing and Screening Plant with One (1) 300 HP Diesel Engine; One (1) 200 TPH Screening Plant; One (1) 500 TPH Screening Plant; and One (1) 600 TPH

Screening Plant

SIC Code: 1411

Location : Various Temporary Sites, State of Hawaii

Proposed initial Location for the new 400 TPH Crushing and Screening Plant with 300 HP Diesel Engine: Kapaa Quarry Road, Kailua, Oahu

Currently approved locations for existing equipment are:

- 275 TPH 428 Trakpactor Impact Crusher with Caterpillar 3306, 300 HP Diesel Engine: Kaneohe Marine Corps Air Station, Kaneohe, Oahu
- 2) 195 TPH Metro Trak Jaw Crusher with Caterpillar 3116TA, 160 HP Diesel Engine: Ewa by Gentry Area 34, Honouliuli, Ewa, Oahu
- 3) 200 TPH Mark (Mk) II Powerscreen, Serial No. 2813808: Meadow Gold Farms, off of Waikupanaha Street, Waimanalo, Oahu
- 4) 600 TPH Mark (Mk) III Powergrid Powerscreen: Ewa by Gentry Area 34, Honouliuli, Ewa, Oahu
- 5) 500 TPH Chieftain 1400 Powerscreen: 92-460 Farrington Highway, Kapolei, Oahu

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Equipment Description:

The applicant is proposing to add the equipment listed in Table 1a. Existing equipment are listed in Table 1b below:

Table 1a - Proposed Equipment

Туре	Manufacturer	Model	Year	Description	Capacity	Power Source
Crushing and Screening Plant	BL-PEGSON	4242 SR Tracked Impactor with product sizing screen Serial # QMO17963	2003	Crushing of basalt, rock, coral, or concrete Screen: vibrating, 2 deck, 11' x 5'	400 TPH ^a	Caterpillar C-9 DITA Diesel Engine listed below
Diesel Engine	Caterpillar	C-9 DITA Serial # CLJ03612	2003	Drives 4242 SR crusher, screen, and conveyors	300 HPª	Diesel #2 max 15.0 gph ^a

Table 1b - Existing Equipment

Туре	Manufacturer	Model	Year	Description	Capacity	Power Source / Fuel
Crusher	BL-PEGSON	428 Trakpactor Serial # QM014776	2000	Crushing of basalt rock, coral, or concrete	275 TPH ^a	Caterpillar 3306 Diesel Engine listed below
Crusher	BL-PEGSON	Metro Trak, Serial # QM10381	rock, coral, or		Caterpillar 3116TA Diesel Engine listed below	
Vibrating Screen	Powerscreen	Mark (Mk) II, Serial # 2813808	1990	2 deck, 4' x 6'	200 TPH ^a	exempt Lister- Petter TS3A008 Diesel Engine
Vibrating Screen	Powerscreen	Turbo Chieftain 1400, Serial # 6608038	2002	2 deck, 11' x 5'	500 TPH ^a	exempt Deutz BF4M 1012C Diesel Engine
Vibrating Screen	Powerscreen	Powergrid, Mark (Mk) III, Serial # 7212816	1997	2 deck, 10' x 7'	600 TPH ^a	exempt Duetz F3L912 Diesel Eng.
Misc. Conveyors				transports material from crushers, screens, and stockpiles		exempt TS2A002 Lister- Petter & Diesel Engines listed

Water spray systems				nozzles located at material transfer points (see below)		N/A
Diesel Engine	Caterpillar	3306; Serial # 64Z33001	2001	Drives Trakpactor and conveyors	300 HPª	Diesel # 2 max 15.4 gph ^a
Diesel Engine	Caterpillar	3116TA; Serial # 2MR01700	2000	Drives Metro Trak and conveyors	160 HPª	Diesel # 2 max 7.9 gph ^a

^aBased on manufacturers specifications.

A second Turbo Chieftain 1400 vibrating screen (Serial No. 6603808), which was previously permitted, was sold and thus, is being removed from the permit.

Proposed Project:

Pineridge Farms, Inc. proposes to add a BL-PEGSON 4242 SR Tracked Impactor with product sizing screen and recirculating facility, and to remove one of the currently permitted Turbo Chieftain 1400 Powerscreens from their Temporary Covered Source Permit No. 0507-01-CT.

Pineridge Farms, Inc. submitted this change as a minor modification as they are proposing to limit the hours of operation of this unit to 2,080 hours in any rolling 12 month period (same limit currently imposed on each of the units permitted); at any site, to only operate this unit as a stand alone facility without any of the other units; to not process fines with the proposed unit; and to maintain all of the other existing permit limits, including location change and facility limiting configurations as established in the original permit evaluation. This existing permit condition limits the facility configurations to the following:

- (1) Mk III Powergrid and One (1) Mk II Powerscreen;
- (2) Mk III Powergrid and One (1) crushing plant (Trakpactor or Metro Trak); or
- (3) Two (2) crushing plants (Trakpactor and Metro Trak), One (1) Mark II Powerscreen, and One (1) Turbo Chieftain 1400 Powerscreen,

as the equipment may operate simultaneously at different locations, or be combined and operate simultaneously at the same location. With the addition of the new unit, a fourth limiting configuration would be added:

(4) 4242 SR Tracked Impactor with Product Sizing Screen

To ensure that the combined emissions from simultaneous operation of various equipment at the same location would not result in a change of maximum potential emissions and not exceed the level for major source (PM > 100 TPY), the applicant proposed to maintain the above three (3) limiting operational site configurations with the addition of the fourth shown above. The location change requirement where total emissions from the equipment covered by this permit shall not exceed limits for a "major source" will also be maintained. With the proposed conditions for the new unit and maintaining of existing conditions for the existing facility, there will be no increase in production rates nor any increases of maximum potential air pollutant emissions allowed at any location for this facility.

The applicant will continue to be allowed to operate in configurations where less equipment than that specified above is used at a site (i.e., operation of each equipment individually at different sites). The Mk III Powergrid Powerscreen is currently not allowed to operate at the same location as the permitted Turbo Chieftain 1400 Powerscreen. This condition shall also be applied to the new unit where the Mk III Powergrid Powerscreen shall not operate at the same location with the 4242 Tracked Impactor with Sizing Screen.

Pineridge is proposing to crush and screen various materials with the mobile crushing and screening plant at various locations in the State of Hawaii. The initial location for the proposed unit is most likely for storage purposes as the initial operating site for this equipment has not been determined. The applicant is also proposing to apply the restriction of no processing of fines to the new unit. The vibrating grizzly feeder will be fed by front end loader. Oversize material is separated and falls to the side of the hopper. Proper size material is transported to the impact crusher. The material is crushed to size and then discharged onto the main delivery conveyor. The material is transferred from this conveyor to the double deck sizing screen. After screening, the proper sized material falls to a underscreen conveyor and is discharged to stockpile. A portion of the material exiting the screen (oversize material) is recirculated back to the vibrating grizzly feeder for recrushing. There are also side transfer conveyors which accept material exiting the screen for discharge to stockpile.

A 300 HP Caterpillar diesel engine provides the power for the proposed crushing and screening plant. The length of operation at each project site is unchanged from the previous submittal with normal operating hours of 8 hr/day, 5 days/week. Operations will be irregular depending on job availability. Typically, there are times when the plants will sit idle.

The remaining equipment located at the facility will remain unchanged and there are no other changes proposed for this facility. The application fee for minor modification to a temporary covered source permit of \$100.00 was processed.

Air Pollution Controls:

The facility will control particulate emissions from the proposed unit by employing water spray bars at the following material transfer points:

- 1. At crusher discharge; and
- 2. At underscreen conveyor discharge.

No other changes to air pollution controls are proposed.

______December 18, 2003

Applicable Requirements:

Hawaii Administrative Rules (HAR)

Title 11 Chapter 59, Ambient Air Quality Standards

Title 11 Chapter 60.1, Air Pollution Control

Subchapter 1 - General Requirements

Subchapter 2 - General Prohibitions

11-60.1.31 Applicability

11-60.1-32 Visible Emissions

11-60.1-33 Fugitive Dust

11-60.1-38 Sulfur Oxides from Fuel Combustion

Subchapter 5 - Covered Sources

Subchapter 6 - Fees for Covered Sources, Noncovered Sources, and

Agricultural Burning

11-60.1-111 Definitions

11-60.1-112 General Fee Provisions for Covered Sources

11-60.1-113 Application Fees for Covered Sources

11-60.1-114 Annual Fees for Covered Sources

Subchapter 8 - Standards of Performance for Stationary Sources

11-60.1-161(25) Standards of Performance for Non-metallic

Mineral Processing Plants

Subchapter 10 - Field Citations

New Source Performance Standards:

40 CFR Part 60 - Standards of Performance for New Stationary Sources

Subpart A - General Provisions

Subpart OOO - Standards of Performance for Non-metallic Mineral Processing Plants

40 CFR Part 60 Subpart OOO applies to portable crushed stone plants with capacities greater than 150 TPH that commence construction, reconstruction, or modification after August 31, 1983. The crushing plants and their conveyors meet these conditions and were determined subject to Subpart OOO in the last permit evaluation. The proposed unit also meets these conditions and is subject to Subpart OOO.

The existing screening units are normally operated independantly of the crushing plants. Although stand alone screens are exempt from Subpart OOO, there may be times, depending on future jobs, when one or more of the screens will be operated in conjunction with a crusher (i.e., all of the material crushed is then screened). Should these screening plants be utilized in conjunction with a crusher, that screen and its conveyors, shall be subject to Subpart OOO. The new crushing and screening plant is designed to operate as one unit where the screen will always be used in conjunction with the crusher, and thus is subject to OOO.

Monthly visible emissions observations are required for the proposed crushing and screening plant as well as initial and annual source performance testing. Monitoring, recordkeeping, notification, and reporting requirements are included in the permit to ensure monthly V.E. observations, and initial and annual source performance testing are properly addressed.

This source is not subject to **PSD** requirements because it is not a major stationary source, as defined in HAR Title 11, Chapter 60.1, Subchapter 7 and 40 CFR Part 52, Section 52.21.

This source is not subject to **NESHAPS** as there are no standards in 40 CFR Part 61 applicable to this facility (crushing and screening plant operations).

This source is not subject to **MACT** as the facility is not a major or area source of HAPS, covered under 40 CFR Part 63.

A Best Available Control Technology (BACT) analysis is required for new covered sources and significant modifications to covered sources that have the potential to emit or increase emissions above significant amounts, as defined in HAR, Section 11.60.1-1, considering any limitations, enforceable by the director, on the covered source to emit a pollutant. This facility is an existing source. The two changes proposed are: 1) the addition of a crushing and screening unit, and 2) the removal of one of the screening units. These two changes, with the associated proposed limitations for the new unit (i.e., 2,080 hr/yr of operation, restricted from processing fines, not allowing any of the other equipment to be operated at the same site as the proposed unit) and maintaining the other limiting configurations and the location change requirements identified in the existing permit do not increase potential emissions at any location and is considered a minor modification. Therefore, a BACT analysis was not performed at this time.

Compliance Assurance Monitoring (CAM) Applicability: 40 CFR Part 64

The purpose of Compliance Assurance Monitoring (CAM) is to provide reasonable assurance that compliance is being achieved with large emission units that rely on air pollution control device equipment to meet an emissions limit or standard. For CAM to be applicable, the emissions unit must: (1) be located at a major source; (2) be subject to an emissions limit or standard; (3) use a control device to achieve compliance; (4) have potential precontrol emissions that are greater than the major source level; and (5) not otherwise be exempt from CAM. The facility remains exempt from Compliance Assurance Monitoring (CAM) provisions because this source is not a major source.

In addition, the stone processing plant does not rely on air pollution control devices to achieve compliance with an applicable emission limit or standard. Passive control measures such as covers are not subject to CAM and per CAB discussion with Mr. Westlin from EPA, water sprays are not considered air pollution control devices per the CAM regulations. An air pollution control device must be involved with the source in order to trigger CAM applicability. However, periodic monitoring/inspection will be required to ensure that the control devices, i.e., water sprays, are working properly.

Consolidated Emissions Reporting Rule (CERR) and Compliance Data System (CDS) Applicability:

40 CFR Part 51, Subpart A - Emission Inventory Reporting Requirements, determines CER based on facility wide emissions of each air pollutant at the CER triggering levels shown below.

Pollutant	CER (Type B) Triggering Levels (tpy)	In-house Total Facility Triggering Levels (tpy)
NO _x	≥100	≥25
SO _x	≥100	≥25
СО	≥1000	≥250
PM ₁₀	≥100	≥25 (PM also)
VOC	≥100	≥25
Pb	≥ 5	≥25

This facility does not have any emissions at the CER triggering levels. Therefore, CER requirements are not applicable.

Although CER for the facility is not triggered, the Clean Air Branch requests annual emissions reporting from those facilities that have facility-wide emissions of a single air pollutant exceeding in-house triggering levels. Annual emissions from these facilities are used within the Department and are not inputted into the AIRS database. Total combined facility emissions exceed the in-house triggering level for PM (96.36 TPY including fugitive) and PM10 (30.40 TPY including fugitive), therefore, annual emissions reporting <u>is</u> required for in-house recordkeeping purposes.

Applicability of CDS reporting looks at emissions on a facility-wide basis and whether or not the facility is a covered source. Compliance Data System (CDS) is an inventory system used to track covered sources subject to annual inspections and requirements are applicable to all covered sources. As a covered source, the facility <u>remains</u> a CDS source and is subject to annual emissions reporting.

Insignificant Activities/Exemptions:

There are no new insignificant activities/exemptions proposed.

Existing insignificant activities at the facility consist of the following:

- Engines exempt from the air permit requirements per requirements per 11-60.1-82(f)(2):
 - a. The Duetz diesel engine (Model F3L912) powering the Mark III Powergrid Powerscreen. 58 HP maximum, 0.462 MMBtu/Hr < 1 MMBtu/HR

- A Duetz diesel engine (Model BF4M 1012C, Serial No. 00756448) powering the remaining Turbo Chieftain 1400 Powerscreen. 109 HP maximum, 0.763 MMBtu/Hr < 1 MMBtu/HR
- c. The Lister-Peter diesel engine (Model TS3A008) powering the Mark II Powerscreen. 2.44 gal/hour maximum fuel feed rate, 0.334 MMBtu/Hr < 1 MMBtu/HR
- d. The Lister-Peter diesel engine (Model TS2A002) powering an auxiliary conveyor used with the Powerscreen to remove undersize material. 1.66 gal/hour maximum fuel feed rate, 0.227 MMBtu/Hr < 1 MMBtu/HR

Sum of the rated heat input from engines listed above, including the proposed Duetz engine:

0.462 MMBtu/Hr + 0.763 MMBtu/Hr + 0.334 MMBtu/Hr + 0.227 MMBtu/Hr = 1.79 MMBtu/Hr, which is < 5 MMBtu/Hr

The second Duetz diesel engine (Model BF4M 1012C, Serial No. 00609879) which powered the removed Turbo Chieftain 1400 screen was removed.

2. Diesel No. 2 fuel is stored on site in a 300 gallon tank. This tank was previously determined exempt from the air permit requirements per HAR, Section 11-60.1-82(f)(1) because it has a capacity of less than 40,000 gallons and is not subject to any standard or other requirement pursuant to Section 111 or 112 of the CAA. This tank is not subject to NESHAPS as there are no standards in 40 CFR Part 61 applicable to this source. It is also not subject to NSPS as there are no applicable regulations in 40 CFR Part 60 pertaining to this fuel tank.

Alternate Operating Scenarios:

No other alternate operating scenarios are proposed as part of this minor modification.

Project Emissions:

The maximum potential emissions at any site, as performed in the original permit application evaluation, <u>remain unchanged</u> with the addition of the proposed unit and associated limits, and maintaining the existing limits on operational hours, fines processing, limiting configurations, and location change requirements.

The data below summarizes the DOH's worst case emission calculations (using maximum equipment capacities and fuel feed rates), performed in the attached enclosures showing crushing / screening, aggregate handling and storage piles, unpaved roads, and diesel engines. Enclosure (1-4242) provides crushing/screening potential emissions for all of the units and deletes emissions from the removed Turbo Chieftain screen, and supersedes Enclosure (1) of the original permit evaluation. Enclosures (2-4242) and (3-4242) attached include the aggregate handling and storage piles and unpaved road emissions of the proposed crushing and screening plant and Enclosure (4-4242) provides the potential emissions for the proposed diesel engine. The remaining Enclosures contained in the original review remain unchanged. The most current AP-42 emission factors were used in the calculations (Tables 3.3-1 and 3.3-2, 10/96; 11.12-2 and 11.19.2-2, 1/95; and Sections 13.2.2, 9/98; and 13.2.4, 1/95). Operations were based on 2,080 hrs/yr for permitted equipment and 8,760 hr/yr for the exempt engines. Engine emission calculations were based on a heating value for diesel No. 2 of 137,000 Btu/gal.

Calculations show that the majority of emissions are particulate matter, fugitive in nature, and are generated by vehicle traffic on the unpaved roads.

Table 2 - PM Emissions, Stone Processing Emissions Summary by Equipment

Unit	Stone Processing TPY	Aggregate Handling / Storage Piles TPY	Unpaved Roads TPY	Stockpile Wind Erosion TPY	Total TPY
Trakpactor Crusher	1.63	2.43	14.90	0.42	19.38
Metro Trak Crusher	1.16	1.73	10.57	0.33	13.79
Mk II Powerscreen	10.11	1.77	10.84	0.34	23.06
One (1) Turbo Chieftain 1400	6.96	4.42	27.10	0.62	39.10
Mk III Powergrid Powerscreen	29.26	5.31	32.52	0.70	67.79
4242 SR Tracked Impactor with Sizing Screen	8.74	3.54	21.68	0.54	34.50

Note: TPY are calculated for 2,080 hr/yr of operation.

Italics indicate emissions from the proposed crushing and screening plant.

PM Emissions from Limiting Potential Configurations (Nos. 1 - 3 are unchanged from the previous evaluation):

1) Mk III Powergrid Powerscreen and Mk II Powerscreen (includes exempt Duetz powering Powergrid, exempt TS2 and TS3 Lister-Petter diesel engines for Mk II Powerscreen):

2) Mk III Powergrid Powerscreen and One (1) Crusher with Caterpillar diesel engine (Trakpactor or Metro Trak) (includes exempt Duetz diesel engine powering Powergrid):

3) One (1) Turbo Chieftain, Mk II Powerscreen, and Two (2) Crushers (Trakpactor and Metro Trak) with two (2) Caterpillar diesel engines (includes exempt Duetz powering Chieftain and exempt TS2 and TS3 Lister-Petter diesel engines for Mk II Powerscreen):

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39.10 TPY + 1.04 TPY + 23.06 TPY + 0.31 TPY + 0.45 TPY + 19.38 TPY + 0.68 TPY + 13.79 TPY + 0.35 TPY = 98.16 TPY
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4) One (1) BL-PEGSON 4242 SR Tracked Impactor with Product Sizing Screen and Caterpillar C-9 DITA diesel engine powering this unit:

34.50 TPY + 0.66 TPY = 35.16 TPY

The Powergrid Powerscreen <u>shall not</u> be operated at the same location as the Turbo Chieftain 1400 or the 4242 SR Tracked Impactor with Sizing Screen. Other configurations utilizing less equipment than that noted above would result in smaller emissions (i.e., powerscreen and one crusher).

The worst case configuration for PM, remains as no. 3): one (1) Turbo Chieftain (with exempt Duetz diesel engine), Mk II Powerscreen (with exempt TS2 and TS3 diesel engines), and two (2) Crushers with the two Caterpillar diesel engines. This configuration would not utilize the exempt Duetz diesel engine powering the Powergrid Powerscreen. Therefore, the emissions from this exempt engine was not included in the worst case Emissions table below.

Table 3 - Emissions Summary (Stone Processing & Diesel Engines)^a
Maximum Emissions Compared to CER, In House, & CDS Levels

POLL U- TANT	Stone Process- ing Plant	Agg Hand/ Storage Piles TPY	Un- paved Roads TPY	Stock- pile Wind Ero- sion TPY ^b	3306 Cater- pillar Diesel Engine TPY	3116TA Cater- pillar Diesel Engine TPY	TOTAL Emis- sions including fugitive TPY	CER Levels TPY	In House/ CDS Levels TPY°	Exempt Diesel Engines TPY ^d	TOTAL Emissions w/ Exempt Diesel Engines TPY
SOx	-	1	1	ı	1.13	0.58	1.71	100	25/ 100	2.99	4.70
NOx	-	1	-	-	9.68	4.96	14.64	100	25/ 100	25.67	40.31
со	-	-	-	-	2.08	1.07	3.15	1000	250/ 1000	5.53	8.68
PM	19.86	10.35	63.41	1.71	0.68	0.35	96.36	-	25/ 100	1.80	98.16
PM ₁₀	9.50	4.90	13.26	1.71	0.68	0.35	30.40	100	25/ 100	1.80	32.20
voc	-	-	-	-	0.79	0.41	1.20	100	25/ 100	2.10	3.30
Pb	-	-	-	-		-	-	5	5/ 5	-	

^aTPY (except for exempt diesel engines) are calculated for 2,080 hr/yr of operation. For uncontrolled emissions at 8,760 hr/yr of operation and lb/hr emissions, see spreadsheets from original permit application review and spreadsheets attached.

^b Wind erosion emissions from storage piles were calculated using AP-42, Table 11.12-2, 10/86, reformatted 1/95. See original permit application evaluation for details.

^c Applicability of CDS reporting looks at emissions on a facility-wide basis and whether or not the facility is a covered source.

^d Emissions for the exempt diesel engines are based on operations at 8,760 hours/year. Includes, per worst case scenario above, engines powering One (1) Turbo Chieftain (Duetz) and Mk II Powerscreen (TS2 and TS3 Lister-Petter).

Table 4 - Emissions Summary for Hazardous Air Pollutants (HAPS)

POLLUTANT	3306 Caterpillar Diesel Engine Emissions (TPY)	3116TA Caterpillar Diesel Engine Emissions (TPY)	Exempt Diesel Engines Total Emissions at 8,760 hr/yr (TPY)	TOTAL Diesel Engine Emissions (TPY)
Benzene*	2.05e-03	1.05e-03	5.43e-03	8.53e-03
Toluene*	8.97e-04	4.60e-04	2.38e-03	3.74e-03
Xylenes*	6.25e-04	3.21e-04	1.66e-03	2.60e-03
Propylene*	5.66e-03	2.90e-03	1.50e-02	2.36e-02
1,3-Butadiene*	8.58e-05	4.40e-05	2.28e-04	3.57e-04
Formaldehyde*	2.59e-03	1.33e-03	6.87e-03	1.08e-02
Acetaldehyde*	1.68e-03	8.63e-04	4.46e-03	7.01e-03
Acrolein*	2.03e-04	1.04e-04	5.38e-04	8.46e-04
Naphthalene*	1.86e-04	9.55e-05	4.94e-04	7.75e-04
PAH*	3.69e-04	1.89e-04	9.78e-04	1.54e-03
TOTAL HAPS* (TPY)	1.42e-02	7.26e-03	3.76e-02	5.90e-02

^{*} Hazardous air pollutants listed in the Clean Air Act and HAR 11-60.1 Subchapter 9. PAH includes Naphthalene.

TPY for 3306 and 3116TA engines are calculated for 2,080 hr/yr of operation. For uncontrolled emissions at 8,760 hr/yr of operation and lb/hr emissions, see spreadsheet and enclosures from original permit application review. Includes, per worst case scenario above, exempt engines powering One (1) Turbo Chieftain (Duetz) and Mk II Powerscreen (TS2 and TS3 Lister-Petter) operating at 8,760 hrs/yr.

A major source as defined in Section 11-60.1-1 of HAR Title 11, has the potential to emit any HAP of 10 TPY or more, or 25 TPY or more of any combination of HAPs, or 100 TPY or more of any air pollutant. Calculated emissions do not meet these limits and thus, this facility is not classified as a major source.

Synthetic Minor Applicability: A synthetic minor source is a facility that is potentially major (as defined in HAR 11-60.1-1), but is made nonmajor through federally enforceable permit conditions (e.g., limiting the facility's hours of operation and limiting the facility's production rate). This facility <u>remains</u> a synthetic minor based on potential emissions (PM and PM-10) of greater than "major" levels (> 100 TPY) when the crushing and screening plants and diesel engines are operated at 8,760 hr/yr. Operating permit limits make the facility nonmajor. See spreadsheets attached and enclosures from original permit evaluation for detailed calculations.

Air Quality Assessment:

The ambient air quality standards seek to protect public health and welfare and to prevent the significant deterioration of air quality. For new facilities and facilities proposing modifications, an ambient air quality assessment is required to analyze the maximum potential pollutant concentrations generated by a source and it's effect on the ambient air.

The Department of Health generally exempts an applicant from performing an ambient air quality impact analysis for (1) existing sources with no proposed modifications, (2) exempt activities,

- (3) fugitive emission sources (e.g., storage tanks, storage piles, pipe leaks, etc.), and
- (4) intermittent operating noncombustion sources.

This facility is proposing a minor modification with the addition of a crushing and screening plant and associated limits and the removal of one screening plant. Being that the Department of Health does not require an ambient air quality impact analysis for fugitive emissions of particulate, an ambient air quality impact analysis was not performed for the newly proposed crushing and screening plant.

Although the proposed 300 HP Caterpillar diesel engine used to power this unit is the same size as the existing diesel engine powering the Trackpactor, the Department ran a screening model for the proposed engine to verify compliance with the ambient air quality standards as there are some differences in the engine stack parameters.

A Good Engineering Practice (GEP) analysis, presented in Table 5 reveals the potential for building downwash:

Width Bldgs/ Hb Length Pw Dist Potential Hg = Hb +Structures Haht (m) (m) Proi. Lesser to Down-1.5(the of 5Hb (m) Width stack lesser of Hb wash or Pw) (m) (m) and (m) 5Pw 0.0 4242 Tracked 4.0 15.9 3.1 16.20 20 20 10.0 Impactor w/ Sizing Screen Trailer 3.0 6.1 2.4 6.56 15 45.7 -30.7 1.8 2.1 1.8 2.77 9.0 45.7 -36.7 Fuel Tank

Table 5 - GEP Analysis (3306B DITA Caterpillar Diesel Engine Stack)

As proposed, the unit will be operating independently of any of the other equipment with the exception of a trailer and fuel tank, and thus, these were the only potential structures to consider for downwash. Should the unit potentially operate in a location with any other nearby buildings/structures a revised GEP analysis shall be considered.

Per telephone conversation with Bo Midro on 12/5/03, in addition to the crushing plant equipment listed above, a temporary trailer and fuel tank may be located at any typical job site. The dimensions and minimum distances to the diesel engine stack were provided as specified above.

The surrounding area includes open wetlands with the closest neighboring buildings/structures to the Kapaa Quarry site located over a quarter mile away (Ameron Quarry).

The crushing and screening plant itself will have the greatest effect for building downwash for the diesel engine stack. This structure was entered into the SCREEN3 models used to predict maximum ground level pollutant concentrations resulting from the diesel engine. See enclosure (6) for modeling results.

Table 6 - Source Emission Rates and Stack Parameters for Air Modeling

Source		Emissio	n Rates		Stack Parameters			
Equipment	SO ₂ (g/s)	NOx (g/s)	CO (g/s)	PM ₁₀ (g/s)	Height (m)	Temp (K)	Velocity (m/s)	Diameter (m)
4242 SR Diesel engine Caterpillar C-9 DITA, 300 HP	0.1331	1.1419	0.2460	0.0803	4.724 (15.5 ft)	696	68.80	0.127

Grams per second emission rates are based on AP-42 emission factors. See enclosure (4-4242). Note: The applicant proposed a raised stack of 15.5 feet (originally 12 feet). See letter dated 12/5/03.

The initial location specified for the proposed unit is identical to where the PEGSON 428 Trackpactor was located in Kappa Quarry. The applicant is not certain of the initial location for operation of the unit, and thus chose the Kapaa Quarry site, as, per the applicant, the Kapaa Quarry site is typical of future project sites. The DOH considered the Kapaa Quarry for modeling purposes of this unit. Being that a typical site would contain a cleared/leveled area, modeling considering flat terrain (from the stack out to 50,000 meters) was performed in addition to simple elevated and complex modeling. Terrain elevations were obtained from the USGS map. Complex modeling was not performed beyond 800 meters being that modeled concentrations (both complex valley and complex simple) continually decreased (or the terrain sloped downward) beyond 200 meters from the source. The highest of all the modeled results were used in the air quality assessment of the engine. The DOH applied the highest background concentrations from the last year (2002), to the source considering all NAMS and SLAMS on Oahu.

Based on these assumptions, the revised modeling performed demonstrated compliance with the ambient air quality standards.

SCREEN3 was used to determine ambient concentrations for flat, simple elevated, and complex terrain (as detailed by the USGS map) from the diesel engine. The highest concentration from the models using complex terrain was 431.4 g/m³ per g/sec (24-hr value) occurred at a distance of 70 meters from the stack. The highest concentration from the models using simple or flat terrain was 3,330 g/m³ per g/sec at 50 meters from the stack.

See attached SCREEN3 models for details. Other settings used: 1) rural designation, 2) default met data and 3) ambient temperature of 298 degrees K.

Table 7
Conversion Factors and Normalized Concentrations from Modeling Results,
4242 SR Unit, Caterpillar C-9 DITA Diesel Engine

	Simple Terr	ain	Complex Te	errain Valley	Complex Terrain Simple		
Averaging Period	Conversion Factor	Normalized Concentration (µg/m³ per g/sec)	Conversion Factor	Normalized Concentration (µg/m³ per g/sec)	Conversion Factor	Normalized Concentration (µg/m³ per g/sec)	
1-hour	NA	3,330	.25	226.80	.4	1,078.5	
3-hour	0.9	2,997	.9	204.12	.9	970.7	
8-hour	0.7	2,331	.7	158.76	.7	755.0	
24-hour	0.4	1,332	NA	56.70	NA	431.4	
Annual	0.2	666	.2	45.36	.2	215.7	

Bold entries are model results.

SCREEN3 outputs a 1-hour concentration for simple terrain and a 24-hour concentration for complex terrain (simple and valley). Conversion factors were used to convert the 1-hour concentration to represent 3-hour, 8-hour, and annual estimates and to convert the 24-hour concentration to represent 1-hour, 3-hour, 8-hour, and annual estimates. The conversion factors are based on EPA and State of Hawaii (annual) scaling factors as shown in the table above.

The highest values of the 1-hr, 3-hr, 8-hr, 24-hr, and annual concentrations were identified in the simple terrain models and used in determining ambient air impacts. Results of the ambient air quality analysis are shown in Table 8.

Table 8 - Predicted Ambient Air Quality Impacts 4242 SR Crushing and Screening Unit, Caterpillar C-9 DITA Diesel Engine

POLLUTANT	AVER. TIME	IMPACT (μg/m³)	Background (μg/m³)	TOTAL IMPACT (μg/m³)	SAAQS (µg/m³)	Percent of Standard
СО	1-hr	819.18	3990 (Honolulu)	4809.18	10000	48.09%
	8-hr	573.43	1810 (Kapolei)	2383.43	5000	47.67%
NO ₂	Annual**	54.47	9 (Kapolei)	63.47	70	90.67%
SO ₂	3-hr	398.90	50 (Makaiwa Gulch)	448.9	1300	34.53%
	24-hr	177.29	13 (Makaiwa Gulch)	190.29	365	52.13%
	Annual**	21.05	3 (Honolulu)	24.05	80	30.06%
PM ₁₀	24-hr	106.96	39 (Waimanalo)	145.96	150	97.31%
	Annual**	12.70	16 (Liliha)	28.7	50	57.40%
Lead	Qtr	_	0.1	0.1	1.5	6.67%

Notes for Tables 8:

(Model conc) x (Potential emissions) x (Time factor) = Potential Ambient Air Impact

EPA time factors of 0.9, 0.7, and 0.4 for the 3 hour, 8 hour, and 24 hour concentrations respectively, and State of Hawaii time factor of 0.2 for the annual concentrations were applied.

For Potential emissions (g/s), see Enclosure (4).

Hour limitation factor = (2,080 hr/year) / (8,760 hr/year) = 0.24

The background air quality data shown in Table 8 was obtained from the maximum values of Hawaii Air Quality Data (DOH/CAB) taken from all Oahu NAMS/SLAMS (2002).

Being that background concentrations for lead were not available from the initial locations, lead background concentrations were taken from Liliha.

^{*}For NO₂ calculations, OLM was applied. See enclosure (5) for details.

^{**}Annual hour limitation factor of 0.24 applied.

State Ambient Standards are stricter than National; therefore, only State Standards are listed. Although background concentrations were taken from areas other than the initial locations, these areas are considered representative or more conservative than the initial locations due to their population and industrial development.

Analysis of the crushing and screening plant is based on operation of its respective diesel engine at 2,080 hours/year.

The combined effect of 1) maximum concentrations generated by the C-9 DITA Caterpillar diesel engine and 2) ambient background concentrations, demonstrate compliance with the State Ambient Air Quality Standards and Federal Ambient Air Quality Standards.

As the applicant proposed that the 4242 SR unit as a stand alone unit, not operating with any other equipment at any site, a separate ambient air quality assessment was performed considering only the 4242 SR Tracked Impactor with Sizing Screen diesel engine. As such, the applicant will not be allowed to operate other equipment (which it owns or operates) in conjunction with this unit. For all changes of location, the permittee will be required to identify in the request, any other air pollution sources owned or operated by the permittee: 1) that are at the new location, and 2) which have operated at or adjacent to the new location within the last twelve (12) months.

The existing permitted diesel engines were previously permitted with no changes and air quality assessments were done in concurrence with the processing of the previous permit application. The facility is not proposing any modifications to the currently permitted equipment. Therefore air quality analyses for these units were not performed at this time. Downwash effects considered in the previously performed Screen3 modeling for these units also remain unchanged as the proposed unit will not be operating with any of the existing units.

Significant Permit Conditions:

Revised and New

Condition:

The 275 TPH portable crushing plant, the 195 TPH portable crushing plant, and the 400 TPH portable crushing and screening plant are subject to the provisions of the following federal regulations:

- 40 CFR Part 60, Standards of Performance for New Stationary Sources, Subpart A, General Provisions; and
- b. 40 CFR Part 60, Standards of Performance for New Stationary Sources, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants.

Purpose: To specify the new unit as subject to the federal regulations listed above.

Condition: For each temporary stone processing plant location, the maximum amount of equipment shall be as follows:

- a. Mk III Powergrid Powerscreen and One (1) Mk II Powerscreen;
- Mk III Powergrid Powerscreen and One (1) crushing plant (Trakpactor or Metro Trak);
- c. One (1) Mk II Powerscreen, One (1) Turbo Chieftain 1400 Powerscreen, and Two (2) crushing plants (Trakpactor and Metro Trak); or
- d. 4242 SR Tracked Impactor with Sizing Screen.

Under no circumstances shall the MK III Powergrid Powerscreen be operated at the same location as the Turbo Chieftain 1400 Powerscreen or the 4242 SR Tracked Impactor with Sizing Screen.

Purpose:

Addition of one additional limiting configuration and no change in the other limiting configurations proposed by the applicant to ensure that the combined emissions from simultaneous operation of various equipment at the same location would not result in any change of maximum potential emissions and would continue to maintain emission levels for each location below "major source" as defined in HAR §11-60.1-1. Condition revised to specify that neither the Turbo Chieftain nor the 4242 SR Tracked Impactor with Sizing Screen can be operated with the Mk III Powergrid.

Condition:

Neither the Turbo Chieftain 1400 Powerscreen nor the 4242 SR Tracked Impactor with Sizing Screen shall be used for the screening of fines. For the purposes of this permit, fines shall be defined as the screen output product having a maximum size of 0.50 centimeters (3/16th inch) (e.g., sand or soil).

Purpose:

The applicant proposed not to process fines with either or these two units. Emission calculations for PM and PM10 were performed based on this assumption.

Condition:

The exhaust stack servicing the 400 TPH 4242 SR Tracked Impactor with Sizing Screen (Caterpillar C-9 DITA) diesel engine shall be constructed to a minimum height of 15.5 feet (4.72 meters) above ground elevation.

Purpose:

To ensure compliance with the ambient air quality standards (NO_2 and PM_{10}).

Existing

Existing 40 CFR Part 60 Subpart OOO provisions, operating hour limitations (2,080 hour in any rolling 12 month period), visible emissions provisions, and initial and annual source performance testing requirements currently specified and applicable to the existing crushing and screening plants shall also apply to the new crushing and screening unit. These conditions are generic as they may apply to any permitted crusher or screen, and remain without change.

Also, Special Condition C.6.c., requiring that for each location, the total emissions from the equipment covered by this Temporary Covered Source Permit shall not exceed the threshold limits for "major source" as defined in HAR §11-60.1-1, shall remain in effect.

Conclusion and Recommendation:

Actual emissions from this facility should remain lower than estimated as:

- 1) The calculated emissions for the proposed crushing and screening plant and associated diesel engine were based on the worst possible potential conditions (maximum rated capacity and fuel feed rate). Actual crushing and screening capacity will vary depending on product size and the type of material and will typically be less than the maximum capacity (i.e., the unit was evaluated at 400 TPH, per the manufacturer, the unit will more likely operate at 150 to 250 TPH).
- 2) There is no change in maximum potential emissions at any location from the proposed minor modification. This is due to maintaining existing permit conditions (limiting configurations and location change requirements), adding a new limiting configuration where the proposed unit is not allowed to operate with any other equipment, and the proposed limits (2,080 hours of operation per any rolling 12 month period limit and restriction from processing fines) for the new unit.
- 3) Calculated emissions from the previous permit application evaluation were conservative.

Based on the information submitted by Pineridge Farms, Inc., it is the preliminary determination of the Department of Health (DOH), that the proposed project will be in compliance with the Hawaii Administrative Rules (HAR), Chapter 11-60.1 and 11-59 and not cause or contribute to a violation of any State or National ambient air quality standard. Therefore, the Hawaii DOH intends to amend Temporary Covered Source Permit No. 0507-01-CT, subject to the significant permit conditions and EPA review.

This permit amendment, when issued, will supersede and replace Attachment II, Special Conditions, of Temporary Covered Source Permit No. 0507-01-CT, as issued on April 25, 2002 and amended on August 25, 2003. Monitoring and Annual emissions report forms have also been updated to reflect the addition/deletion of the proposed changes as well as addition of Attachment II-insig to reflect the latest Hawaii Administrative Rule changes regarding insignificant activities.